WHAT IS CLAIMED IS:

1.   A method for optimizing matching of dealer orders with manufacturing plant output, comprising:

receiving order data descriptive of a plurality of requested vehicles, the order data including specified vehicle options;

combining the order data with manufacturing plant data, the manufacturing plant data representing vehicle production capabilities of a manufacturing plant, to generate a manufacturing plant production order;

identifying attribute constraints within the manufacturing plant production order by determining which of the specified vehicle options of the manufacturing plant production order are subject to the vehicle production capabilities of a manufacturing plant;

performing a calculation using a linear expression on the manufacturing plant production order and the attribute constraints, the calculation dividing the manufacturing plant production order into balanced assignments according to the multiple attribute constraints.

2.   The method of claim 1 wherein the manufacturing plant data includes limitations on the combination of features or variations that a factory is prepared to produce.

3.   The method of claim 2 wherein the limitations indicate an upper production bound and a lower production bound.

4.   The method of claim 1 wherein the attribute constraints are weighted according to a pre-determined ranking hierarchy.

5.   The method of claim 4 wherein calculation using a linear expression comprises:

(a) applying each of the weighted attribute constraints to the manufacturing plant production order;

(b) calculating a minimum production constraint for each of a plurality of manufacturing plants according to the plurality of weighted attribute constraints;

(c) applying a minimum production tolerance, for each of the plurality of manufacturing plants, to the manufacturing plant production order; and

(d) generating a set of balanced assignments that distributes the manufacturing plant production order among the plurality of manufacturing plants wherein each of the plurality of manufacturing plants is assigned a balanced production order.

6.   The method of claim 5 wherein the step of generating is followed by reviewing the set of balanced assignments to determine whether it conforms to a pre-determined balance criteria.

7.   The method of claim 5 wherein the pre-determined balance criteria comprises vehicle production shipment costs.

8.   The method of claim 6 wherein the calculation using a linear expression is iterative, and is terminated when the set of balanced assignments conforms to a pre-determined balance criteria.

9.   A method for transforming a set of vehicles ordered by a dealer into a matching set of orders to a manufacturer, the set of orders conforming to the manufacturer's requirements and limitations for directing a vehicle production to the dealer, comprising:

receiving data descriptive of a set of requested vehicles, said data including a plurality of attribute constraints;

organizing the received data to construct a manufacturing plant production order including data descriptive of a plurality of sets of requested vehicles;

ranking the plurality of attribute constraints according to a pre-determined hierarchy;

weighting each of the plurality of attribute constraints according to the ranking;

processing the manufacturing plant production order with a linear expression process comprising:

(a) applying each of the plurality of weighted attribute constraints to the manufacturing plant production order;

(b) calculating a minimum constraint for each of a plurality of manufacturing plants according to the plurality of weighted attribute constraints;

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(c)   applying a minimum production tolerance to the manufacturing plant production order;

(d)   generating a set of balanced assignments that distributes the manufacturing plant production order among a plurality of manufacturing plants wherein each of the plurality of manufacturing plants is assigned a balanced production order;

(e)   reviewing the set of balanced assignments that is generated in each step of said linear expression process to determine whether the set of balanced assignments meets a pre determined balance criteria; and

(f)   terminating said linear expression process when the set of balanced assignments meets the pre determined balance criteria.

10.   The method of claim 9 wherein the pre-determined balance criteria comprises vehicle production shipment costs.

11.   The method of claim 9 wherein the linear expression process further comprises: applying transportation costs to the manufacturing plant production order.

12.   The method of claim 9 wherein the attribute constraints include at least one of a group of attributes consisting of vehicle color, vehicle body type, number of doors, and vehicle options.

13.   The method of claim 9 further comprising transmitting assignments from the set of balanced assignments to the manufacturing plants.

14.   The method of claim 9 wherein the re-seller is one of a plurality of re-sellers.

15.   A system for matching dealer orders with manufacturing plant output to optimize manufacturing plant production and product distribution, comprising:

a computer having a program for balancing production lot sizes and manufacturing plant orders;

data storage operatively connected to the computer and containing manufacturing plant data representing manufacturing plant production capabilities and manufacturing plant production tolerances;

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the computer configured to receive order data descriptive of a plurality of sets of requested vehicles, said order data including specified vehicle options; and

the computer also operable for executing the program, said program comprising a linear expression process for transforming the plurality of sets of requested vehicles into balanced assignments according to multiple attribute constraints and minimum manufacturing plant production.

16. The system of claim 15 wherein the data storage is contained in the computer.

17. The system of claim 15 wherein the order data comprises the multiple attribute constraints.

18. The system of claim 16 wherein the multiple attribute constraints are weighted according to a hierarchy.

19. The system of claim 17 wherein the linear expression comprises

(a) applying each of the multiple weighted attribute constraints to the order data;

(b) calculating a minimum constraint and a maximum constraint for each of a plurality of manufacturing plants according to the multiple weighted attribute constraints; and

(c) applying the manufacturing plant production tolerances to the manufacturing plant production order;

20. Computer-readable storage media containing software thereon which, when loaded and executed on a computer, and in combination with execution of other software on the computer, causes the following steps to occur:

data descriptive of a plurality of requested vehicles, said data including specified vehicle options, is organized to construct a manufacturing plant production order;

a plurality of attribute constraints within the data is identified;

the plurality of attribute constraints is ranked according to a pre-determined hierarchy;

each of the plurality of attribute constraints is weighted according to the ranking;

the manufacturing plant production order is processed with a linear expression process wherein:

each of the plurality of weighted attribute constraints is applied to the manufacturing plant production order;

a minimum constraint and a maximum constraint are calculated for each of a plurality of manufacturing plants according to the plurality of weighted attribute constraints;

a minimum production tolerance is applied to the manufacturing plant production order;

a set of balanced assignments that distributes the manufacturing plant production order among a plurality of manufacturing plants is generated, wherein each of the plurality of manufacturing plants is assigned a balanced production order;

the set of balanced assignments that is generated in each step of said linear expression process is reviewed to determine whether the set of balanced assignments is adequately balanced; and

the linear expression process is terminated when the set of balanced assignments conforms to a pre-determined balance criteria.